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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,844	06/27/2003	Hiroyuki Iwahara	030776	4813

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EXAMINER	
RENNER, CRAIG A	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/606,844	IWAHARA ET AL.	
	Examiner	Art Unit	
	Craig A. Renner	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 2-12 is/are pending in the application.

4a) Of the above claim(s) *11 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 2-10 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 March 2006 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 8 is rejected under 35 U.S.C. 102(b) as being anticipated by Hatagami et al. (US 6,163,443).

Hatagami teaches a disc unit (FIG. 1, for instance) comprising a head (32/32a) that records information (via coil 93) onto and/or reproduces information (via MR element 86) from a disc (20); and a trunk flexible printed circuit board (50), which is connected to the head from a suspension (35) and is attached to the side surface of the

suspension through an air gap (as shown in FIGS 2 and 3, for instance), that transmits a signal indicative of the information to and from the head (lines 12-16 in column 7, for instance), the flexible printed circuit board having at least two layers (96a and 96b, for instance, as shown in FIG. 8, for instance), one layer of which damps vibration generated in the other layer (i.e., one layer would inherently damp vibration at least to some extent); and a main flexible printed circuit board (42), connected to the trunk flexible printed circuit board (lines 65-67 in column 6, for instance), which comprises a preamp IC (48) that amplifies the signal.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inaba (JP 11-134627) in view of Dakroub et al. (US 6,349,009).

With respect to claim 8, Inaba teaches a disc unit (paragraph [0001] of the computer translation, for instance) comprising a head (16) that records information onto and/or reproduces information from a disc (paragraph [0001] of the computer translation, for instance); and a trunk flexible printed circuit board (1), which is connected to the head from a suspension (13) and is attached to the side surface of the

suspension (i.e., an upper side surface, for instance) through an air gap (as shown in FIG. 3, for instance), that transmits a signal indicative of the information to and from the head (lines 1-3 in the "PROBLEM TO BE SOLVED" portion of the Abstract, for instance), the flexible printed circuit board having at least two layers (2 and 6, for instance), one layer (2) of which damps vibration (due to contact with vibration-deadening plate 7) generated in the other layer (6).

With respect to claims 2-7 and 9-10, Inaba teaches a disc unit (paragraph [0001] of the computer translation, for instance) comprising a head (16) that records information onto and/or reproduces information from a disc (paragraph [0001] of the computer translation, for instance); a suspension (13) that supports the head and includes a circuit (directly under 16 in FIG. 3, for instance) that is electrically connected to the head; a trunk flexible printed circuit board (1), which is connected to the circuit of the suspension and is attached to the side surface of the suspension (i.e., an upper side surface of the suspension) through an air gap (as shown in FIG. 3, for instance), the trunk flexible printed circuit board transmitting a signal indicative of the information to and from the head (lines 1-3 in the "PROBLEM TO BE SOLVED" portion of the Abstract, for instance); and a damper (includes 7 and 8, for instance) that damps oscillation of the trunk flexible printed circuit board (lines 1-2 in the "ADVANTAGE" potion of the DERWENT Abstract, and paragraph [0016] of the computer translation, for instance) [as per claims 7 and 9]; wherein the trunk flexible printed circuit board is connected to the circuit at a first junction (4), and a main circuit at a second junction (5), and wherein the trunk flexible printed circuit board is fixed to the suspension between

the first and second junctions (as shown in FIG. 3, for instance) [as per claim 10]; wherein the damper comprises a first layer (7); and a second layer (8), formed on the trunk flexible printed circuit board and connected to the trunk flexible printed circuit board (paragraph [0018] of the computer translation, for instance), which elastically transmits the oscillation from the trunk flexible printed circuit board to the first layer (paragraph [0018] of the computer translation, for instance) [as per claim 2]; wherein the second layer is made of a viscoelastic material (paragraph [0018] of the computer translation, for instance) [as per claim 3]; wherein the second layer is a pressure sensitive adhesive double coated tape (paragraph [0018] of the computer translation, for instance) [as per claim 4]; wherein the first layer is made of metal (paragraph [0012] of the computer translation, for instance) [as per claim 5]; and wherein the first layer is made of a constraint layer material (paragraph [0012] of the computer translation, for instance, i.e., "metal", for instance) [as per claim 6]. Inaba, however, remains silent as to the disc unit further comprising a "main flexible printed circuit board, connected to said trunk flexible printed circuit board, which comprises a preamp IC" as per claims 2-10; as to the constraint layer material being "polyimide" as per claim 6; and as to the disc unit further comprising a "spindle motor that rotates the disc at a speed of 10,000 rpm or higher, wherein the disc has storage capacity of 60 GB or larger" as per claim 7.

Inaba does, however, teach that the trunk flexible printed circuit board is attached to a reading and writing amplifier part substrate (lines 1-4 in the "SOLUTION" portion of the Abstract). Dakroub teaches a disc unit (100) further comprising a main flexible printed circuit board (128), connected to a trunk flexible printed circuit board (160, lines

9-16 in column 5, for instance), which comprises a preamp IC (130), in the same field of endeavor for the purpose of enabling signal preamplification. Official notice is taken of the fact that polyimide is a notoriously old and well known constraint layer material in the art. Official notice is also taken of the fact that it is notoriously old and well known in the art to have a disc unit further comprise a spindle motor that rotates a disk at an increased disc rotational speed in the same field of endeavor for the purpose of enabling faster access rates. Official notice is lastly taken of the fact that it is notoriously old and well known in the art to increase disc storage capacity in the same field of endeavor for the purpose of enabling more storage capability. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the disc unit of Inaba further comprise a main flexible printed circuit board, connected to the trunk flexible printed circuit board, which comprises a preamp IC, as taught by Dakroub; to have had the constraint layer material of Inaba be polyimide; to have had the disc unit of Inaba further comprise a spindle motor that rotates the disc at a speed of 10,000 rpm or higher; and to have had the disc storage capacity of Inaba be 60 GB or larger. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the disc unit of Inaba further comprise a main flexible printed circuit board, connected to the trunk flexible printed circuit board, which comprises a preamp IC, as taught by Dakroub, since such enables signal preamplification, and since Inaba recognizes the need for the trunk flexible printed circuit board to be attached to a reading and writing amplifier part substrate.

One of ordinary skill in the art would have been motivated to have had the constraint layer material of Inaba be polyimide since polyimide is a notoriously old and well known constraint layer material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

One of ordinary skill in the art would have been motivated to have had the disc unit of Inaba further comprise a spindle motor that rotates the disc at a speed of 10,000 rpm or higher since such enables faster access rates.

One of ordinary skill in the art would have been motivated to have had the disc storage capacity of Inaba be 60 GB or larger since such enables more storage capability.

Pertinent Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Putnam et al. (US 5,095,396), Berding et al. (US 5,781,380), Larson (US 5,818,667), Fish et al. (US 6,057,981), and Tadepalli et al. (US 6,366,432), which each individually teaches a disc unit with a main flexible printed circuit board having a preamp IC.

Response to Arguments

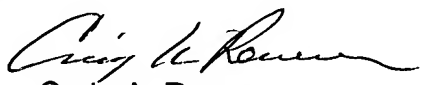
7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Craig A. Renner
Primary Examiner
Art Unit 2652

CAR